

### **REMARKS**

This is in response to the Office Action mailed on August 10, 2004, and the references cited therewith.

Claims 39-43 are canceled. Claims 1-38 are now pending in this application.

#### **§103 Rejection of the Claims**

Claims 1-9 were rejected under 35 USC § 103(a) as being unpatentable over Shinagawa (U.S. Patent No. 6,363,368) in view of Itoh et al. (U.S. Patent No. 6,052,678). This rejection is respectfully traversed. Claims 1-9 contain elements not shown or suggested by the references, either alone or combined.

Claim 1 refers to a “genetic algorithm including an objective function to simultaneously minimize distance and time”. Itoh et al. uses “a plurality of optimum solution search techniques of a genetic algorithm” (Abstract), and switches between them to make the search more efficient. There is no mention of minimizing both time and distance as claimed. Shinagawa also uses a genetic algorithm and fitness values calculated from gene arrangements of chromosomes. Col. 2 lines 5-7. There is no mention of minimization based on both distance and time. Thus, neither reference, either alone or combined teach or suggest using a genetic algorithm to minimize both distance and time.

The Office Action clearly states that Shinagawa does not minimize distance and time. It refers to Col. 5 lines 26-52 of Itoh et al. as including an objective function to simultaneously minimize distance and time. This assertion is respectfully traversed. The cited language, while referring to objective values, appears to be referencing values associated with each of the different search techniques that are switched between when predetermined transition conditions are found. This clearly is not related to using an objective function to minimize distance and time. In fact, a word search of Itoh et al. from the USPTO electronic copy shows that the word, “time” is used almost exclusively in the context of execution time. Thus, since at least one element is clearly lacking from the references, the rejection should be withdrawn.

§102 Rejection of the Claims

Claims 10 and 34 were rejected under 35 USC § 102(e) as being anticipated by Dueck et al. (U.S. Patent No. 6,418,398). This rejection is respectfully traversed, at least on the basis that Dueck et al. lacks at least one element of claims 10 and 34. Applicant reserves the right to swear behind Dueck et al. at a later date.

Dueck et al. uses a ruin and recreate method for vehicle routing. The language cited in the Office Action, Col. 12, lines 13-46 as showing a genetic algorithm that minimizes time and distance actually appears to be discussing prior art. It references a time window in which deliveries can be accepted, but does not reference minimizing time. There is no teaching that references the use of a genetic algorithm to minimize both time and distance. In fact, Dueck et al. appears to describe a best insertion method for adding “customers out of service successively I the best possible way to the system.” Col. 13, lines 53-57. This clearly is not a genetic algorithm. Dueck et al. goes on to state that customer are added back in to the routes in a manner that does “not violate any restriction (e.g. time window constraints)”. Col. 13, lines 57-58. The claim language of claims 10 and 34 recite a genetic algorithm that minimizes distance and time. As this element is clearly not shown in Dueck et al. the rejection should be withdrawn.

Claim 24 was rejected under 35 USC § 102(b) as being anticipated by Itoh et al. This rejection is respectfully traversed. As indicated above, Itoh et al. does not describe the optimization of both distance and time. Claim 24 does so in the context of the use of chromosomes, and a fitness representing distance and time simultaneously. Since this element is clearly lacking in Itoh et al. the rejection should be withdrawn.

Claims 39-43 were rejected under 35 USC § 102(e) as being anticipated by Dueck et al. Claims 39-43 have been cancelled to facilitate prosecution of the application. Applicant reserves the right to pursue such claims in a divisional application at a later date.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6972 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

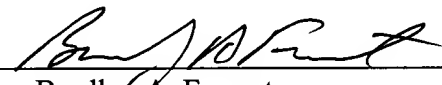
Respectfully submitted,

RAVINDRA K. SHETTY

By his Representatives,

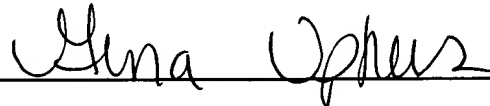
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Date 11/3/2004

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